Kentucky Method 64-317-02
Revised 12/23/02
Supersedes 64-317-95
Dated 5/17/95

COMPRESSIVE STRENGTH OF CYLINDRICAL CONCRETE SPECIMENS USING NEOPRENE CAPS

Perform Test Procedure according to ASTM C 1231 with no exceptions.

~~1. SCOPE -~~

~~1.1 This method is a modification of AASHTO T22, Annex, and covers the determination of compressive strength of cylindrical concrete specimens such as molded cylinders and drilled cores using re-usable neoprene caps with steel extrusion controllers.~~

~~2. APPARATUS -~~

~~2.1 Two steel extrusion controllers shall be used. Dimensions for the inside diameter, wall thickness, and bearing surface thickness are shown in figure 1. All bearing surfaces of the controller, both inside and outside, shall be machine planed to within 0.5 mm (.020 in.). The outside bearing surface shall be maintained free of gouges, dents, or protrusions larger than 2 mm (0.062 in.) in depth or 7.10 mm^2 (0.11 in^2) in surface area. The inside bearing surface shall be maintained to within 0.5 m (0.020 in.) of plane.~~

~~2.2 Two neoprene caps (pads) with dimensions of 153 mm (6 1/8 in). in diameter and 13 mm (1/2 in.) thick shall be used.~~

~~2.3 Talcum Powder~~

~~2.4 A compression machine meeting the requirements of ASTM C39.~~

~~3. TEST SPECIMENS -~~

~~3.1 Both ends of cylinders must be completely dry prior to testing to avoid the possibility of allowing moisture to get between the neoprene caps and the steel extrusion controllers and then rusting.~~

~~3.2 Each end of the concrete cylinder shall be plane within 6mm (0.25 in.) across any diameter; i.e., there shall be no depressions or protrusions in the concrete surface which are greater than 6mm (1/4 in.). Cylinders which do not meet this tolerance shall not be tested unless the surface irregularity is first corrected.~~

~~3.3 Neither end of the concrete cylinder shall depart from perpendicularity to the axis by more than 6mm (0.25 inch) in 305 mm (12 inches). Cylinders not meeting this tolerance shall not be tested unless this irregularity is first corrected.~~

4. PROCEDURE -

4.1 Each neoprene cap (pad) shall have a light coat of talcum powder on the bearing surface prior to testing a cylinder.

4.2 There shall be no loose particles of sand, concrete, dust, etc. trapped in the following locations during testing:

4.2.1 Between the neoprene cap and the steel extrusion controller.

4.2.2 Between the cylinder and the neoprene cap.

4.2.3 Between the steel extrusion controller and the bearing blocks of the testing machine.

4.3 Place an extrusion controller, containing a neoprene cap, on the top and bottom surface of the concrete cylinder. With the caps in contact with the cylinder, carefully align the axis of the specimen with the center of thrust of the spherically seated block. Bring the bearing blocks of the machine in contact with both of the extrusion controllers.

4.4 If the first cylinder of a set tests low, the second cylinder of the set shall be tested using a new or nearly new set of pads.

4.5 Discontinue the use of any pad when:

4.5.1 The edge of the pad is worn more than 3 mm (1/8 inch).

4.5.2 The surface becomes visually damaged such as splitting or gouging.

4.5.3 The surface develops permanent compression set in the bearing area.

5. PRECAUTIONS -

5.1 Concrete cylinders tested with neoprene caps rupture more intensely than comparable cylinders tested with sulphur-mortar caps. As a safety precaution, the cylinder testing machine should be equipped with a protective cage.

5.2 The loading rate for some testing machines may have to be adjusted when using neoprene caps.

6. CALCULATIONS -

6.1 The compressive strength of the specimen shall be calculated as described in the Calculations Section of AASHTO T 22.

~~7. REPORT -~~

~~7.1 The report shall contain all the items noted in the Report section of AASHTO T22.~~

APPROVED _____
Director
DIVISION OF MATERIALS

DATE _____12/23/02_____

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